From:	McCarter, Jennifer
To:	Muller, Sheldon
Cc:	Bloomberg, Jon H; Kilty, Quinn V; Jacobson, Linda; Pearson, Janice (she/her/hers)
Subject:	RE: Xcel Comanche: Additional Information Sought by EPA
Date:	Tuesday, April 13, 2021 9:24:56 AM
Attachments:	Xcel Comanche Reporting Table CCR_Apr2021.pdf ATT00001.txt

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Sheldon, attached are the tables of all results to date for all wells. The record of sampling for various groups of wells differs based on when the wells were installed, as listed below. EPA also requested any lab reports that had not been provided previously. Upon review of the Annual Groundwater Report for 2020, I found that it included all sample results, including from December 2020 that were reported in January 2021. Since then, we have received the lab reports for the January 2021 sampling event, which I have attached. On the call this afternoon, we plan to provide a brief review of the geologic cross-sections prepared by HDR, and will also provide those files.

Landfill Wells

- One original well (MW-3) sampled since 2015
- Two wells (MW-5 & MW-6) sampled since 2017, part of new landfill cell
- Three wells (MW-1B, MW-2B and MW-4B) installed in August 2020, first sample January 2021

Bottom Ash Pond Wells

- Two wells (W-1 and W-2) were not part of original monitoring system, sampled beginning in 2020, W-2 replaced with W-2A in 2021)
- Four original wells (W-3, W-4, W-5 and W-6)
    - original background sampling 2015 – 2017
    - updated background Aug – Dec 2020 to coincide with new wells, first detection monitoring January 2021
- Two new wells (W-2A and W-2B) installed August 2020
    - 8 background samples in 2020, first detection monitoring sample January 2021
    - W-2A new upgradient/background well
    - W-2B screened in consolidated shale, site characterization only, discontinued sampling
- Seven new perimeter monitoring wells installed in 2020
    - W-7 installed Aug. 2020, 8 background Aug-Dec 2020, first detection monitoring January 2021
    - W-8A installed Aug. 2020 DRY (not included in table)
    - W-8B installed Aug. 2020, characterization sample Sept. 2020, nominal recharge, functionally dry
    - W-9, W-11, W-12 installed Dec. 2020, first detection monitoring sample January 2021
    - W-13 drilled Dec. 2020; dry (not included in table)
- W-10B new site characterization well installed Aug. 2020, first detection monitoring January 2021
- W-5B new bottom ash pond monitoring well, weathered shale, installed Dec. 2020, first detection monitoring January 2021

Jennifer McCarter, R.E.M.
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From: Muller, Sheldon <Muller.Sheldon@epa.gov>
Sent: Monday, April 5, 2021 2:52 PM
To: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>
Cc: Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>
Subject: RE: Xcel Comanche: Additional Information Sought by EPA

Jennifer:
This responds to your March 26, 2021 email below regarding the north-south cross sections. With respect to those cross sections, EPA's expectations and understandings, at this point, are:

1. That Xcel should have pertinent information from both the wells on-site at the Comanche Generating Station and the well drillers logs from the domestic wells. Although our expectation is that the driller logs for the domestic wells will not be as detailed as those for the on-site wells, they should contain enough information related to depth-to bedrock and the overburden materials to make some educated correlations to aid our understanding regarding the relationship of on-site conditions to the domestic wells. At least one geologic map (Scott, 1969) covering the area is available.
2. We expect that local topographic and geologic maps will be used to inform vertically exaggerated cross section(s), in addition to the information gained from the wells. Geologic contacts should be ground-truthed where necessary and possible.
3. The local known geology should be used to inform the relationships at depth. The geologic map (Scott, 1969) does have strike-and-dip measurements for Pierre Shale outcrops near the domestic wells and information regarding structural features that would influence conditions at depth. There may be more recent or more detailed maps available for the area, and if so, those should be referenced, but, in any event, the cross section(s) should not rely on well-derived subsurface data alone.

EPA may request additional information from Xcel in this regard as we move forward.
Sheldon

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From: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>
Sent: Friday, March 26, 2021 10:37 AM
To: Muller, Sheldon <Muller.Sheldon@epa.gov>

Cc: Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>

Subject: RE: Xcel Comanche: Additional Information Sought by EPA

Hi Sheldon, I wanted to respond to your questions (see below), even though we are still compiling some of the information. We expect to have the follow up information to EPA the first full week in April. We would also like to respond to the request EPA made on our call to develop a north to south cross section from our site to the St. Charles River. As we stated, to create a true cross section would require extensive borings over this distance of about one mile. However we have asked our consultants to compile the available data on the off-site wells and provide a graphic illustration of this data relative to our on-site CCR units and wells, which we believe will provide the 'generalized' view that EPA requested.

Thank you,

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From: Muller, Sheldon <Muller.Sheldon@epa.gov>

Sent: Friday, March 19, 2021 12:39 PM

To: McCarter, Jennifer <jennifer.mccarter@xcelenergy.com>

Cc: Bloomberg, Jon H <Jon.H.Bloomberg@xcelenergy.com>; Kilty, Quinn V <quinn.v.kilty@xcelenergy.com>

Subject: Xcel Comanche: Additional Information Sought by EPA

Jennifer:

Below is the additional information that we would like.

1. Table of sampling results to date for all wells, with associated lab reports (no need to re-send the reports that are available in the 2020 GW Monitoring Report). We are in the process of preparing more 'user friendly' formatted tables, in addition to the data export table previously provided to EPA. We expect to be able to complete and send those the first full week in April, and will include any lab reports not previously provided.
2. Relative ratio of CCR vs. non-CCR waste into Bottom Ash Pond, prior to cessation of non-CCR waste. As mentioned in our call last week, prior to cessation of the non-CCR waste that was going to the bottom ash pond, the non-CCR waste represented approximately 7% of the total waste going to the pond at that time. We ceased discharging non-CCR waste to the bottom ash pond on January 28, 2021.
3. Any reason that the volume of CCR waste into Bottom Ash Pond might change? We would not expect any increase in CCR waste volume into the pond. The estimate of bottom ash solids previously provided was based on a five year average, and most of those solids are captured in the upstream concrete bunker. In the last year, we have seen the generation load decrease as more renewables are brought on line, and expect to see more of that over the next five years up to retirement of Unit 2. This would result in lower CCR waste volume into the bunker

and pond.

Sheldon

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